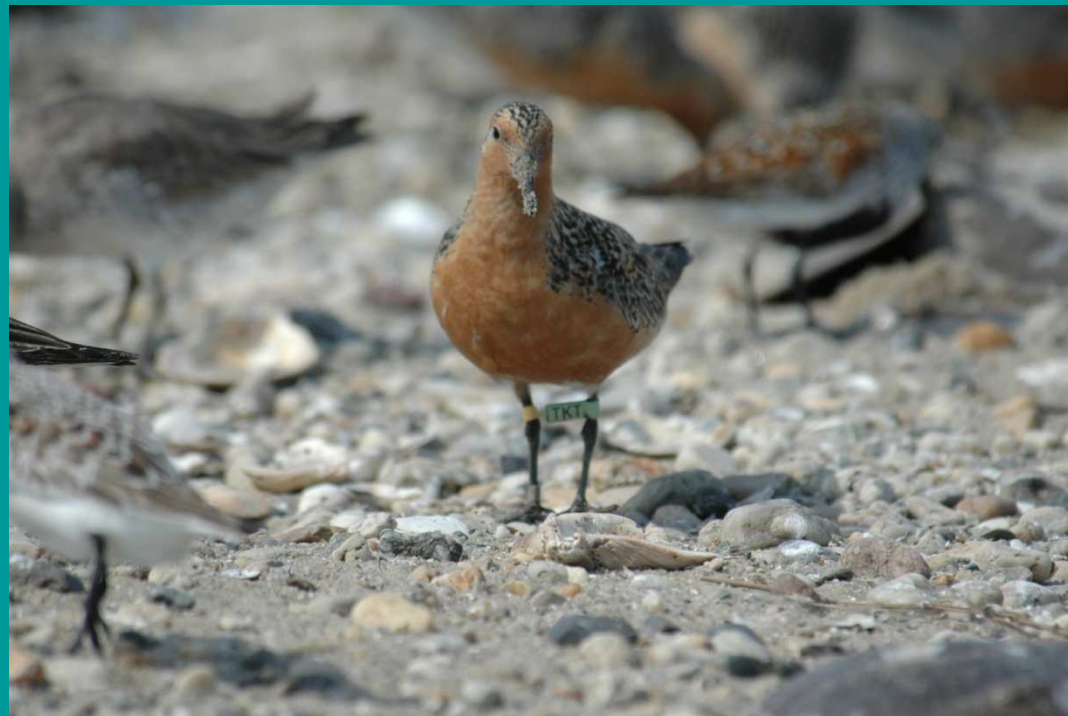


Resighting Individually Marked Birds...



Your resighting work will be part of an international effort to individually mark Red Knot (*Calidris canutus*) in the Western Hemisphere in order to better understand their ecology, population status, and trends. Ruddy Turnstone (*Arenaria interpres*), Sanderling (*Calidris alba*), and Semipalmated Sandpipers (*Calidris pusilla*) have also been marked. Approximately 10% of the red knot population in the Western Atlantic flyway has been individually marked at this point. The birds are marked with colored flags and bands.



Birds have been marked for resighting in three different ways:

- ❖ Flags with 2 characters plus color band
- ❖ Flags with 3 characters (may have additional color bands)
- ❖ Flags with no characters plus colored bands

** You are only expected to record birds with characters on the flag.



2 characters



3 characters



No characters

Birds without characters on the Flag

Birds were primarily marked in this way as cohorts prior to 2003. A cohort means a group of birds were marked the same way. The addition of color bands made some of these birds identifiable as individuals.

Over the years some birds have lost one or more bands, which can make it uncertain whether it is cohort or individually marked. In addition there is difficulty in determining color due to fading and staining of the plastic. Finally, due to the number of bands that need to be accurately recorded there has been difficulty getting reliable observations. *For these reasons you will not be expected to record birds marked in this way.*



Birds with characters on the flag

Birds marked with flags that have characters are all marked as individuals. With one exception, all can be identified as individuals by the flag code alone.

That exception is US (lime colored) Flags that have only 2 characters (see second photo from left). In this case, duplicate codes were used and the color band (usually there is only one and it is on the opposite leg) must be recorded as well as the flag code.

This bird needs to have the Flag Code AND Band Color recorded



US



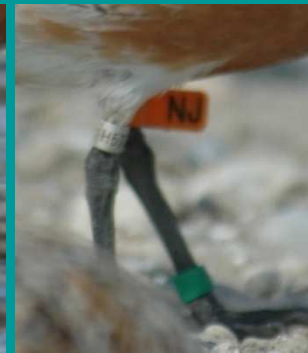
US



Chile



Argentina



Argentina





















Brazil

Flag Colors by Country

Each country has been assigned a specific color flag to use. The flag colors you will most likely see are:

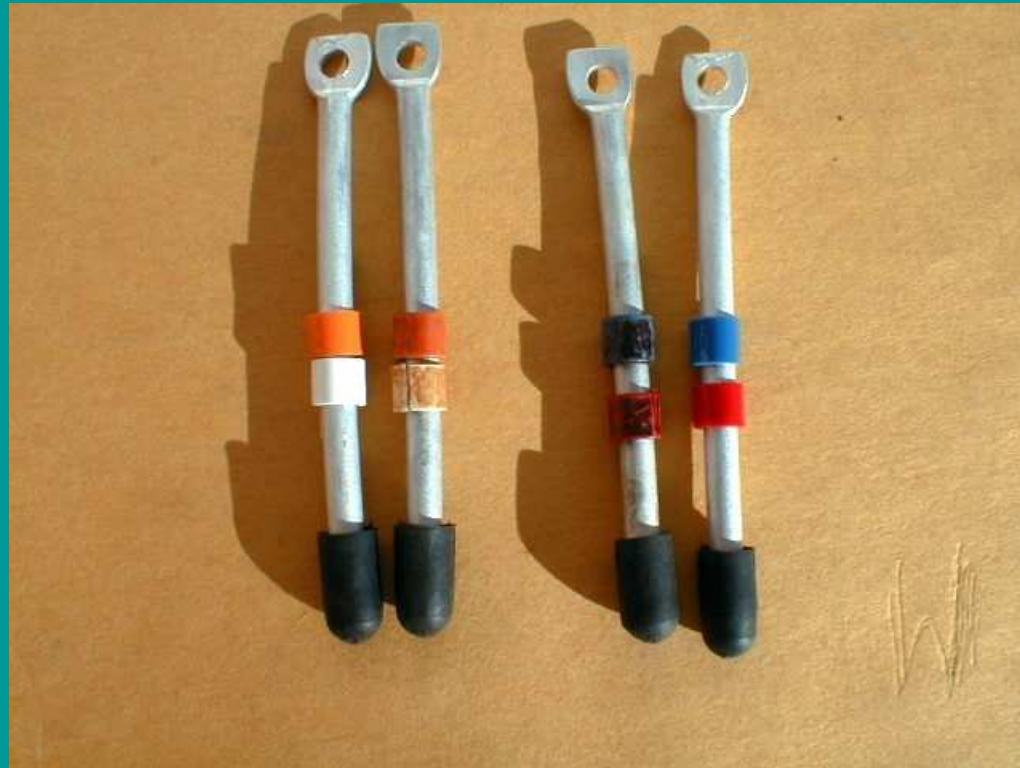
Flag colors and inscriptions:

Canada						
	Pre-2003		2003		2004	2007
USA						
Brazil						
Argentina						
Chile						

The convention for recording flags is to write an “F” to designate it is a flag and the first letter of the color for example: Brazil would be FB

Examples of flags and colored bands with discoloration :

Here are some examples of the plastic material that has faded or , become stained/obscured. This can make the characters on the flags difficult or impossible to read. In addition, different lighting conditions can make the colors difficult to determine. Taking your time to be certain of the observations and noting these conditions can be helpful in difficult cases.



Overview

This training module is designed to teach you how to resight and record the information you collect. You will be part of a team of 2 or more people who will be assigned to go to a specific location and record what you see for a period of time. Your team will record three types of information.

1. **General Site Information:** where, when, who was on the team, what the conditions were, and an estimate the number of birds by species in that location. A Site Visit Form is used to record this information.
2. **Ratio of Marked to Unmarked Birds:** The ratio of marked to unmarked birds gives us an estimate of the populations size. A Ratio Form will be used to record this information.
3. **Individually Marked Birds:** Most of your time will be spent recording information on marked birds. You will “resight” any individually marked birds you see. A Scan Form will be used to record this information. Accuracy is critical, otherwise the resighting data cannot be used.

You will be outside most of the time doing this. It is a good idea to dress for changing conditions, have water and snacks, as well as sunscreen and insect repellent.

Site Visit Form

Check for flags Obs	# REKN Sheets <u>1</u>	# RUTU Sheets	# SAND Sheets	# SESA Sheets
FOR OFFICE USE Sheet ID: 2009				

Delaware Shorebird Project

Visit summary form (aka Cover Sheet)

DO NOT use this sheet for Mispillion surveys

Visit details (fill out on every visit even if no shorebirds present)

Observer(s): <u>R Kalesz</u> <u>J Woods</u> <u>G Bress</u>	Date: <u>12 May 2009</u> Time: 24 Hour (00:00) Start: <u>0930</u> End: <u>1315</u>	Site: <u>North Bowers Beach</u>
--	---	---------------------------------

Record names as first initial & last name

Time of tide (approx.) CIRCLE ONE

1 = HIGH, 2 = near high/RISING, 3 = near high/FALLING, 4 = half/RISING, 5 = half/FALLING, 6 = low/RISING, 7 = near low/FALLING, 8 = LOW, 9 = UNKNOWN

Weather Conditions

Sky: <u>20</u> (% overcast)	Wind: (Beaufort Scale) 0 <u>1</u> 2 3 4 5 6 (circle one)	Wind Direction: <u>Onshore</u> Offshore Alongshore	Visibility: <u>Low</u> Mod <u>High</u>	Rain: <u>None</u> Light
--------------------------------	--	--	--	----------------------------

BEAUFORT WIND SCALE: 0 - Calm; 2 - Light Air (smoke drifts); 3 - Gentle breeze (raises dust & paper); 5 - Fresh breeze (trees sway); 6 - Strong but

Bird Numbers (Enter "0" if none present) ACC

TC = a true count. ES = an extrapolated estimate, or GE = a "guesstimate"

Knot: <u>5, 15, 18</u> <div style="display: flex; justify-content: space-between;"> <div> <u>39</u> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">TC</div> <div style="border: 1px solid black; padding: 2px;">ES</div> <div style="border: 1px solid black; padding: 2px;">GE</div> </div> </div> <div> <u>1000</u> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">TC</div> <div style="border: 1px solid black; padding: 2px;">ES</div> <div style="border: 1px solid black; padding: 2px;">GE</div> </div> </div> </div> <div style="width: 50%;"> Turnstone: <u>0</u> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">TC</div> <div style="border: 1px solid black; padding: 2px;">ES</div> <div style="border: 1px solid black; padding: 2px;">GE</div> </div> S-b Dowitcher: <u>0</u> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">TC</div> <div style="border: 1px solid black; padding: 2px;">ES</div> <div style="border: 1px solid black; padding: 2px;">GE</div> </div> Herring Gull: <u>0</u> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">TC</div> <div style="border: 1px solid black; padding: 2px;">ES</div> <div style="border: 1px solid black; padding: 2px;">GE</div> </div> Ring-billed Gull: <u>0</u> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">TC</div> <div style="border: 1px solid black; padding: 2px;">ES</div> <div style="border: 1px solid black; padding: 2px;">GE</div> </div> </div>
--

* all other shorebirds including Lesser Sandpiper, Willet and Am. C.

Flock Activity (feeding, loafing, flying, etc.)

50% Feeding, 50% Loafing

Human activity (include boats, number of people)

Beach walkers (2)

Disturbance During this census, shorebirds w

A = UNDISTURBED B = disturbed 1-2 times, C = 3+

Surgeon Observation

Approximate Length _____ Photo Taken?

Condition/Comments:

Enter

Ratio Form

[illegible]

Scan Form

1. Site Visit Form

The Site Visit Form begins with general information that includes: Scan Sheets, Observers, Date and Time, Location, Tides, Weather, and Visibility.

Check if no flags Obs ____	# REKN Sheets <u>1</u>	# RUTU Sheets ____	# SAND Sheets ____	# SESA Sheets ____	FOR OFFICE USE Sheet ID: 2009 _ _
----------------------------	---------------------------	-----------------------	-----------------------	-----------------------	--------------------------------------



Delaware Shorebird Project Visit summary form (aka Cover Sheet)

DO NOT use this sheet for Mispillion surveys

Visit details (fill out on every visit even if no shorebirds present)

Observer(s): <u>KKalasz</u> <u>J Woods</u>	Date: <u>12 May 2009</u>	Site: <u>North Bowers Beach</u>
Scribe: <u>G Breese</u>	Time: - 24 Hour (00:00)	
Record names as first initial & last name	Start: <u>0930</u> End: <u>1315</u>	

Time of tide (approx.) CIRCLE ONE

1 = HIGH, 2 = near high/RISING, 3 = near high/FALLING, 4 = half/RISING, 5 = half/FALLING, 6 = low/RISING, 7 = near low/FALLING, 8 = LOW, 9 = UNKNOWN

Weather Conditions

Sky: <u>20</u> (% overcast)	Wind: (Beaufort Scale) 0 1 <u>2</u> 3 4 5 6 (circle one)	Wind Direction: <u>Onshore</u> Offshore Alongshore	Visibility: Low Mod <u>High</u>	Rain: <u>None</u> Light Moderate Heavy
--------------------------------	--	--	------------------------------------	--

BEAUFORT WIND SCALE: 0 - Calm; 2 - Light Air (smoke drifts); 3 - Gentle breeze (can feel wind on your face); 4 - Moderate breeze (raises dust & paper); 5 - Fresh breeze (trees sway); 6 - Strong breeze (large tree branches move, wires whistle)

1. Site Visit Form: Observers, etc

Visit details (fill out on every visit even if no shorebirds present)

Observer(s): <i>K Kalasz</i> <i>J Woods</i>	Date: <i>12 May 2009</i>	Site: <i>North Bowers Beach</i>
	Time: - 24 Hour (00:00)	
Scribe: <i>G Breese</i> <small>Record names as first initial & last name</small>	Start: <i>0930</i> End: <i>1315</i>	

This section is used to record the observers, who recorded the information on the sheet, the date and time of the visit, and the location visited. Make sure to:

- Use first initial and complete last names to avoid confusion

- Write the month as a word to avoid confusion

- Use 24 hour time

- Be consistent with location names

1. 12 Hour Time vs 24 Hour Time

morning		8:00 am	=	08:00
		10:15 am	=	10:15
noon	→	12:00 pm	=	12:00
afternoon		3:20 pm	=	15:20
		4:00 pm	=	16:00
evening		6:30 pm	=	18:30
		9:57 pm	=	21:57
midnight	→	12:00 am	=	00:00
		2:00 am	=	02:00
		4:00 am	=	04:00

1. Site Visit Form: Bird Info

Bird Numbers (Enter "0" if none present) ACCURACY: Please indicate in each block whether your count is: TC - a true count, ES - an extrapolated estimate, or GE - a "guesstimate". Place tallied count in smaller boxes.									
Knot: 5, 15, 1, 18 39	Turnstone: 0	Sanderling: 0	Dunlin: 200 200						
Semi-p Sand: 1000 1000	S-b Dowitcher: 0	Other*: (blank)							
Herring Gull: 0	Ring-billed Gull: 0	Laughing Gull: 0	Gr-Black-b Gull: 0						

* all other shorebirds including Least Sandpiper, Willet and Am. Oystercatcher; also Least Tern, Black Skimmer

Flock Activity (feeding, loafing, flying, etc.)

50% Feeding, 50% loafing

Total numbers of birds are recorded on the Site Visit Form. Enter a "0" in the block for species not observed rather than just leaving it blank. This will ensure that the person entering the data knows that species were not present rather than not counted. Indicate whether it is a True Count (TC), Extrapolated Estimate (ES), or a Guesstimate (GE).

True Count: Each bird was counted

Extrapolated Estimate: Numbers were systematically estimated

Guesstimate: A quick estimate was done, basically a first impression

Flock Activity is meant to give a general impression of what the birds were doing.

1. Site Visit Form: Human Activity & Disturbance

Human activity (include boats, number of people, foot traffic, dogs, etc.)

Beach walkers (2)

Disturbance During this census, shorebirds were: (circle one) *

A = UNDISTURBED, <u>B</u> = disturbed 1-2 times, C = 3-4 times, D = 5-10 times, E > 10 times, X = unknown

*include natural and human-caused disturbance

This section is meant to give a rough idea of the human activity taking place during the visit and how often the birds are disturbed.

Disturbance includes non human disturbance as well as disturbance caused by humans. You are not expected to spend a lot of time on this, simply give a reasonable sense for what was occurring. Pay particular attention to boats and peregrine falcons (PEFA) and include them in disturbance.

1. Site Visit Form: Sturgeon

Sturgeon Observation

Approximate Length _____

Photo Taken? Yes No

Condition/Comments:

Occasionally Sturgeon are encountered dead on the beach. Sturgeon are ancient fish, dating back at least 70 million years, and can be found along the entire Atlantic coast from Florida to Labrador, Canada. Sturgeon may live up to 70 years old. Since colonial times, sturgeon have supported commercial fisheries and in the late 1800s, they were second only to lobster among important fisheries with landings estimated at seven million pounds per year. Overharvesting of sturgeon for flesh and eggs (known as caviar) continued through the 1990s. Currently rare, sightings provide valuable information for scientists and managers working to conserve them.



2. Ratio of Marked:Unmarked REKN & RUTU

- Use a separate sheet for each species
- Choose a representative portion of the flock
- Count unmarked birds until you come to a marked bird (inscribed flags only)
- Note the marked bird, then continue counting unmarked birds
- Scan a total of 50 birds
- Repeat this every 30 min
- If the flock is less than 50 birds, count the number present and note how many that was
- If the flock takes off before you have scanned 50 birds, simply record what you have scanned.
- Note it is important to minimize double counting of birds.

2. Ratio Form

Marked to Unmarked Ratio Scans

Begin scanning across a flock counting each bird you see. When you get to a bird with a coded leg flag, circle the corresponding number. If the flock flies before you scan 50 birds or the flock is smaller than 50 birds, draw a line after the last bird counted. Attach this sheet to your resighting cover sheet. Complete a scan approximately every half hour.

Sheet ID: 2010-003 Date: 17 May 2010 Species: REKN
Location: Mispillion - Back Beach Observer: Gregory Breeze

Time: 15:30

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

Time: 16:00

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

The first ratio scan @15:30 in this example was of 50 birds, and five of those had inscribed flags on, noted by circling the appropriate numbers.

The 16:00 scan took place when only 30 birds were present, three of which had inscribed flags. The total number in the flock is indicated by the vertical line.

Remember any bird **without an inscribed flag is an unmarked** bird and any **inscribed flag of any color is a marked** bird, for this purpose.

3. Scan Form

Sheet 1 of 1

FIELD RESIGHTING DATA SHEET
ONLY 1 SPECIES PER SHEET

FOR OFFICE USE

Sheet ID: 2009_ _____

Species: <i>Red Knot</i>	Observer: <i>K Kalasz</i>	Date: <i>12 May 2009</i>	Site: <i>North Bowers Beach</i>
	Scribe: <i>GBreese</i>		

Work down the columns. Please write clearly! See additional notes at bottom.

Time	FL(NAC)	L	Abdominal Profile:	# of Flag Characters:	Time		Abdominal Profile:	# of Flag Characters:
<i>1030</i>	<i>FL(NAC)</i>	<i>L</i>		<i>3</i>				
	<i>-</i>	<i>M</i>	Plumage:	RUTU Sex (if known):			Plumage:	RUTU Sex (if known):

The task that you will spend most of your time on will be recording individually marked birds using the Scan Sheet. Accuracy is critical. The next few slides will describe how birds are marked, what to observe, and how to record the information properly.

Recording Information for Individually Marked Birds:



Information to record:	Species	flag color	3 character code
In this photo:	Red Knot	Orange Flag	CNP
Or to write it more efficiently:	REKN FO (CNP)		

Species Codes

- Red Knot = REKN
- Ruddy Turnstone = RUTU
- Sanderling = SAND
- Semipalmated Sandpiper = SESA

Note: This code (which is widely used for birds) uses the first two letters of the first and last word, or, in the case of the bird having only one word for its common name, the first 4 letters.

Flag/Band Position

The position that a band or flag has on the legs of a bird can be significant. The scheme used is as if you are looking at the bird from the rear:

Upper Left



Upper Right



Lower Left



Lower Right



Information to record for birds with a 2 character Lime Flag:

Information to record:

Species

flag color

2 character code

Colored Band(s)

Position on legs



In this photo:

REKN

FL (XL)

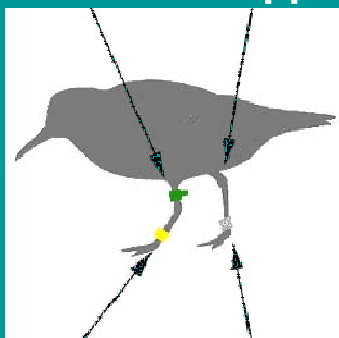
O

--

m

Upper Left

Upper Right



Lower Left

Lower Right

Note: Use “—” to indicate that there were no bands at that position on the leg. Use “ ” to indicate that you do not know if there were any bands at that position on the leg. Use “m” to indicate metal band which you may be able to see.

The Scan Sheets are designed to follow this method of recording. You do not need to fill out all 4 quadrants if the code does not require it. For instance, in the example below you could have simply entered “FL (NAC)” in the upper left quadrant. As recorded this tells you that the red knot had a lime flag on the upper left leg with the characters “NAC” inscribed on the flag, nothing on the lower left leg, a lime band on the upper right leg, and a metal band on the lower right leg.

FIELD RESIGHTING DATA SHEET

ONLY 1 SPECIES PER SHEET

FOR OFFICE USE

Sheet ID: 2009_

Species: <i>Red Knot</i>	Observer: <i>KKalasz</i>	Date: <i>12 May 2009</i>	Site: <i>North Bowers Beach</i>
	Scribe: <i>GBreese</i>		

Work down the columns. Please write clearly! See additional notes at bottom.

Time			Abdominal Profile:	# of Flag Characters:
<i>1030</i>	<i>FL(NAC)</i>	<i>L</i>		<i>3</i>
	<i>-</i>	<i>M</i>	Plumage:	RUTU Sex (if known):

Time			Abdominal Profile:	# of Flag Characters:
			Plumage:	RUTU Sex (if known):

Remember: Lime colored flags with only 2 characters also need to have the colored bands recorded in the appropriate quadrants. Accuracy is critical. Write clearly. Do not put more than one species per sheet. Indicate how many sheets per species in the upper right corner.

Time should be recorded at the start and then every 30 minutes, on the hour and half hour. Try not to duplicate birds within one time period. Do record the same bird in different time periods. This provides information on turnover rates.

Sheet 1 of 1

FIELD RESIGHTING DATA SHEET
ONLY 1 SPECIES PER SHEET

FOR OFFICE USE

Sheet ID: 2009_ _____

Species: <u>Red Knot</u>	Observer: <u>KKalasz</u>	Date: <u>12 May 2009</u>	Site: <u>North Bowers Beach</u>
	Scribe: <u>GBreese</u>		

Work down the columns. Please write clearly! See additional notes at bottom.

Time <u>1030</u>	FL(NAC) <u>L</u>	Abdominal Profile:	# of Flag Characters: <u>3</u>
	<u>-</u>	Plumage:	RUTU Sex (if known):
	<u>M</u>		

Time		Abdominal Profile:	# of Flag Characters:
		Plumage:	RUTU Sex (if known):

Generally you will not be using the Number, Abdominal Profile, Plumage, or RUTU Sex boxes until you have further training and experience beyond the scope of this module.

Site Visit Form: After You have Finished Resighting

Check if no flags Obs ____	# REKN Sheets <u>1</u>	# RUTU Sheets ____	# SAND Sheets ____	# SESA Sheets ____	FOR OFFICE USE Sheet ID: 2009 _ _
----------------------------	---------------------------	-----------------------	-----------------------	-----------------------	--------------------------------------

After you have finished resighting, be sure to record how many Scanning Sheets were filled out on that visit. This information is entered at the top of the Scan Sheet. This links the Site Visit Form with the Scan Sheets. In other words the marked bird observations are linked to the specific visit. Simply enter the number of Scan Sheets filled out for each species. If no marked birds were observed check the “No Flags Observed” box.

Here are some examples


- Note what is being recorded and how it is written down
- Remember that it is written as if you are seeing the bird from the rear.

Example 1



Example 1

REKN FL (PLE)




Since this is a 3 character flag this is all the information needed.

Example 2



Example 2

RUTU FL (HYC)



Note this is a ruddy turnstone. Since this is a 3 character Lime colored flag this is all the information needed.

Example 3

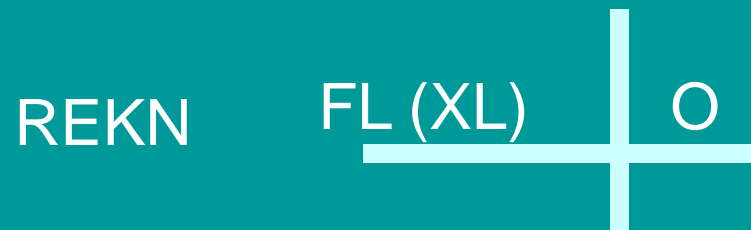


Example 3



Since this is a 2 character flag you need to record where colored bands are. Note that if you cannot see part of the leg, you should leave that quadrant blank (" ") as opposed to a "—" for no bands or flags on that part of the leg.

You do not need to record everything, but must record any color bands in addition to the flag. It would also be acceptable to record this as:



The next 20 slides will give you practice

- Pretend you are in the field
- Decide whether to record the information or not
- Write down the information
- After every 5 slides you will see what should have been recorded.
- Accuracy is more important than speed
- If you cannot make out the characters, note what you saw and were able to observe, along with notes on the staining or other conditions that made it difficult or impossible to determine the code.

Example 4



Example 5



Example 6



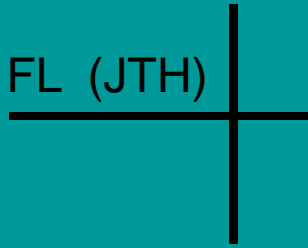
Example 7



Example 8

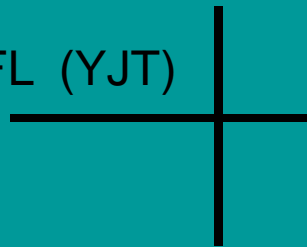


Example 4: REKN FL (JTH)

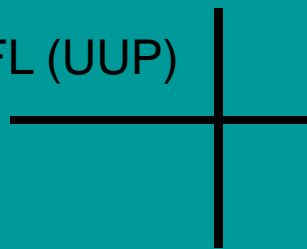


Example 5: nothing to record for this sanderling (SAND)

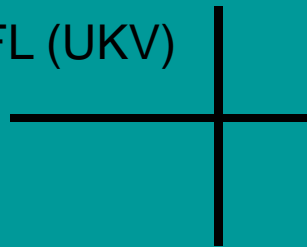
Example 6: REKN FL (YJT)



Example 7: REKN FL (UUP)



Example 8: REKN FL (UKV)



Example 9



Example 10



Example 11



Example 12



Example 13



Example 9: nothing to record (REKN)

Example 10: SAND FL (VKX)

Example 11: REKN FL (KM3)

Example 12: RUTU FL (XMC)

Example 13: REKN FL (KEJ)

Example 14



Example 15



Example 16



Example 17



Example 18



14: RUTU FL (KPN)

--	m

15: REKN FO (NJ)

	m
G	

 or

FO (NJ)	
G	

16: nothing to record on this REKN

17: REKN Flag obscured

FL (2_)	G
	m

Recording unreadable characters can be helpful. In this case the order and number of “_”s in the code is important. One “_” per character and in the proper location for the code. In this case, you are saying it was a 2 character code and the second letter was obscured.

18: REKN FR (EN)

Example 19



Example 20



Example 21



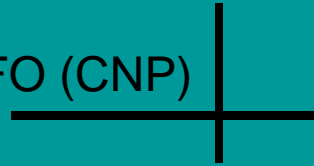
Example 22



Example 23



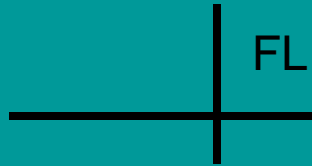
19: REKN FO (CNP)



20: REKN FL (HM7)

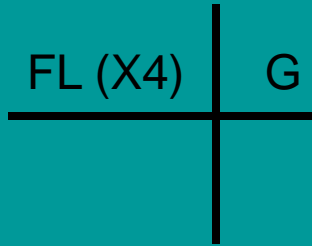


21: REKN



FL (N7K)

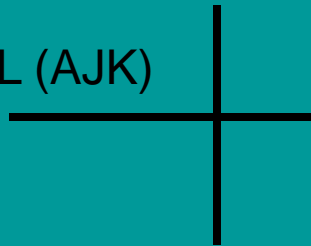
22: REKN FL (X4)



G

Lower legs were obscured

23: RUTU FL (AJK)



Example 24



Example 25



Example 26



Example 27



Example 28



Example 29



24: REKN FL (EHC)

25: REKN FL (T6M)

26: REKN FB (AB)

Y

27: REKN FL (87)

O

28: RUTU FL (LNA)

29: REKN FO (K4S)

Tagged Horseshoe Crabs



If you find a tagged Horseshoe Crab Record that too.

These tags will have a unique tag number and a phone number for calling in the information:



Note: Two different phone numbers are being used. In addition to the tag number, you should record the telephone number, date, location, whether the animal was alive or dead, and whether you left the tag on or took it off, which you might do if the animal was dead.

Credits

Prepared by: Gregory Breese, US Fish & Wildlife Service
Kevin Kalasz, Delaware Division of Fish & Wildlife
Jean Woods, Delaware Museum of Natural History

Technical Consultant: Simon Gillings, British Trust for Ornithology

Photos by: Gregory Breese, US Fish & Wildlife Service
British Trust for Ornithology

March 2010

